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East Europe Report

SCIENTIFIC AFFAIRS

No. 649



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EAST EUROPE REPORT
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BRIEFS

NEW LASER RANGE-FINDER DEVELOPMENT--[Comment by Prof (Dr) Stanislaw Grzedzielski, director of the Space Research Center of the Polish Academy of Sciences] "We have a laser device for measuring the distance to satellites. This device was jointly constructed by the countries participating in the INTERKOSMOS program. Our laser range finder has a range of approximately 2,000 km and is accurate to approximately 0.5 meter. I can say in this regard that we initiated the construction of a new, second-generation range finder. This device will have a range which is several times longer and an accuracy which is five times greater than the existing device. We believe that we will be successful in doing this in Poland in cooperation, of course, with many establishments and institutions, including primarily those of the Military Technical Academy and the MERA enterprise. We ourselves will not construct everything. We are coordinating all activities. We hope that our device will be in the forefront for this type of equipment which is well-known in foreign countries." [Excerpt] [Warsaw SKRZYDLATA POLSKA in Polish No 37, 16 Sep 79 p 8]

CSO: 2602

POLISH ACADEMY OF SCIENCES ACTIVITIES, PERSONNEL

Warsaw NAUKA POLSKA in Polish No 3, Mar, Apr, May 79

[Mar 79, No 3, 132-151]

[Excerpts] Agreements on Scientific Cooperation

From 23 to 27 October 1978 talks were held in Stockholm between a delegation of PAN [Polish Academy of Sciences], headed by Tadeusz Orłowski, first deputy scientific secretary of PAN and regular member of PAN, and a delegation of the Royal Swedish Academy of Sciences, headed by its general secretary, professor Dr Carl Gustaf Bernhard.

As a result of the evaluations that were made during these talks it was found that through their collaboration these two scholarly institutions had produced and jointly published a number of valuable studies. It was also agreed that during the period 1978-1980 both academies would engage in cooperative efforts in 15 subject areas, including, inter alia, the fields devoted to the study of the central nervous system, functional and classic math analysis and the algebraic theory of numbers, methods used to identify small-scale thermal effects, biocybernetics and biomedical engineering, molecular genetics, the genetics of microorganisms and viruses, and theoretical physics. In order to provide for the fulfillment of plans for cooperation in these selected subject areas both academies reached agreement concerning the maximum number of persons involved in staff personnel exchanges, financial conditions, and essential issues pertaining to the organizational aspects of these cooperative ventures.

The protocol agreement will remain in force from 1 July 1978 to the end of July 1980.

During the period 1976-1978 institutional components of the Polish Academy of Sciences and the Royal Swedish Academy of Sciences engaged in cooperation in seven subject areas. This cooperation consisted mainly of the sharing of research workloads, the pursuit of mutually complementary research work, the delivery of test specimens on a mutual exchange basis, consultations, and so on. This cooperation has resulted in, among other things, the joint interpretation of readings designed to measure the superconductive phase of

the electrical conductivity of silver iodide, the results of which were reported on at an international conference on solid-state electrolytes. This kind of cooperation helped to bring about a clearer understanding of the chemical structure of the sugar elements of lipopolysaccharides derived from 13 serogroups of *Shigella flexneri*, a finding which is of great importance to the conduct of tests aimed at explaining the effects of these higher biological substances in vitro and their role in the pathogenesis of enteritis. Within the context of the subject area devoted to the study of the central nervous system three jointly authored papers were prepared for publication dealing with the neural regulation of respiration, being devoted in particular to developing a clearer understanding of the deflation reflex mechanism. During the course of joint research work on the theory of numbers mathematicians from both countries identified the relative density of primary numbers and made major progress toward solving problems associated with the basic values and properties of approximations in Banach spaces, the Banach spaces of analytical functions. In the subject area devoted to the study of the effects of pollutants in the Baltic Sea on changes in marine environment parameters both sides worked together to develop a methodology and an intercalibration system for taking measurement readings of chlorophyll levels and the qualitative and quantitative characteristics of Baltic phytoplankton. Research work was also carried out aimed at studying the physical, chemical and biochemical processes that have an impact on levels of environmental pollution. The findings of research work dealing with the development of a methodology for recording small-scale thermal effects and with the design and technology of calorimetric systems were reported on at the IUPAC [International Union of Pure and Applied Chemistry] Fifth International Conference on Chemical Thermodynamics and published in three scientific articles. Cooperation between the Institute of Biocybernetics and Biomedical Engineering and its Swedish counterparts dealt with the exchange of information concerning both the actual technical designs of image processing equipment and the software used for the programming of this equipment. During the period 1976-1978 a total of 167 PAN personnel traveled to Sweden, and during this same period PAN institutions played host to 36 Swedish scholars.

From 6 to 8 December 1978 talks were held in Paris between delegations representing the Polish Academy of Sciences and the French National Center for Scientific Research [CNRS] with a view to the renewal of the Accord on Scientific Cooperation and the signing of a protocol agreement covering the period 1979-1981. The PAN delegation was led by J. Kaczmarek, scientific secretary and regular member of PAN.

As a result of these talks it was decided that the life of this accord should be extended for a period of 5 years. A review was also made of the results achieved through this cooperation during the period 1976-1977, a review which concluded, inter alia, that especially fruitful results have been achieved in the following problem areas: the structure and electron properties of solid states, the magnetic properties of semimetallic compounds, the effects of molecular and ion action in liquids, molecular and macromolecular chemistry, geophysics and geodynamics, the mechanics of solid

states, liquids and gases, acoustics, and the genetics and physiological structure of animals. It was also found that the cooperating institutes, in most cases, employed more advanced forms of cooperation, e.g., the joint formulation of programs, workload sharing, the formation of joint research teams. It was also agreed that in the course of drawing up plans for future research projects current study problem subject areas should be broadened to include certain priority fields of basic research such as nutrition, energetics and environmental studies (especially in the field of ecology).

It was resolved that during the period 1979-1981 PAN and CNRS will engage in cooperative research projects in 22 problem areas and 35 subject areas, including for example, the biochemistry of cells and subcellular structures, molecular biology, the advancement of basic genetic and physiological knowledge leading to an increase in farm animal productivity, catalysis and absorption, organic synthesis, physical-chemical and analytical methods, research on the structure and properties of electronic solid states, the physics and chemistry of condensed systems, problems of the physics of the Earth's interior and geodynamics, problems of modern mathematics and numerical methods, the mathematical foundations of computer science, problems of management organization, the dynamics of oceans and inland waters, the mechanics of deformed solid states and liquids and gases, theoretical and methodological studies of the human personality and their specialized orientation, and comparative studies of legal systems.

It was agreed that PAN and CNRS will act to promote cooperation in the publishing field and in particular in connection with the publication of volumes II and III of the "Complete Works" of Nicholas Copernicus and that they will cooperate with each other in connection with the organization in Poland of scientific colloquia devoted to the study of the heterogeneity of deformations in metals, the participation of citizens and social organizations in the process of reviewing the performance of state civil service organs, and catalysis (the Seventh Polish-French Colloquium) and the organization in France of scientific colloquia devoted to the study of nonlinear problems of mechanics and the heterogeneity of deformations in metals. It was resolved that efforts would be continued to promote cooperation between the PAN OIN [expansion unknown] and the technical records centers of CNRS, the PAN Center for Inventions and the Protection of Patent Rights and the CNRS Agence Nationale de Valorisation de la Recherche. It was further agreed that pursuant to a separate agreement concluded between PAN and CNRS honorary prizes will be instituted to be awarded to the authors of outstanding papers presenting the results of joint research projects.

The protocol was signed for the Polish side by PAN scientific secretary and regular member Jan Kaczmarek and for the French side by the director general of CNRS, professor Robert Chabbal.

During the period 1976-1978 the cooperative ventures entered into by PAN and CNRS covered 25 problem areas and 59 special subject areas. Among the more important results of the cooperation that took place during this period one should mention the study of Josephson junctions for application

microwave engineering systems, as a result of which a new type of junction was developed (loop junctions) that make it possible to produce better couplings than conventional circuits. The findings of this research work published and utilized in connection with the construction of a Polish voltage model. Thirteen jointly authored papers were published in the field of research on structural and magnetic ternary uranium compounds with tetragonal structures. Joint geological research work produced the first reliable findings on the age of the northern granite shield of the Erzgebirge Mountains which constitute an important element in the geologic structure of the Sudeten range. The studies that were made of protein structures in Arabian horses are making it possible to use the methods that were developed for the purpose of determining the blood types of other farm animals. Cooperative research projects in the field of metal alloys and composite materials produced new data on the kinetics of the irregular separation of alloys and resulted in the development of a method permitting the theoretical modeling of anisotropic changes in sheet metals.

Moreover, cooperation with French institutions has made it possible to perform a number of tests on test apparatuses that are unavailable in Poland (e.g., the study of Raman spectra as they apply to monocrystals fabricated in Poland and the study of the strength of sandstone extracted from the "Rudno" mine), to use French scientific apparatuses during joint research projects (observations of the effects of deformations of the Earth's crust at the Ksiaz observatory), the sharing of research methods and techniques, consultations, and so on.

From 13 to 16 December 1978 talks were held in Warsaw between delegations of the Polish Academy of Sciences and the Academy of Finland. The PAN delegation was led by regular PAN member, chairman W. Nowacki.

During the course of these talks it was concluded that cooperation between both academies had been fruitful and especially effective in the study of the following problem areas: social structures; genetics; clinical, physiological and basic research in the neurological sciences; geophysics, seismology and atmospheric physics; the ecology of insects; and functional analysis.

Agreement was also reached on the problem areas that would be the focal points of joint research projects scheduled for the period 1979-1980, in which connection the lists of scientific institutions cooperating in the problem areas of both countries will be finalized by no later than 1 March 1979. This program covers 22 problem areas, including inter alia, environmental ecology, genetics, medical bioengineering, animal feeding, low temperature physics, mathematics, systems analysis and control theory, metallurgy, and the comparative history of Poland and Finland up to the beginning of the 20th century.

Agreement was also reached on personnel exchange quotas and on the terms for financing the study tours of scholars from both academies.

The finalized protocol was signed for the Polish side by PAN president and full member Witold Nowacki and for the Finnish side by the president of the Finnish Academy, professor Helge Gyllenberg.

The protocol went into effect on 1 January 1979 and will remain in force through 31 December 1980.

During the period 1977-1978 PAN and the Academy of Finland engaged in cooperation in 19 special subject areas, as a result of which a number of interesting findings were obtained. Inter alia: in the subject area encompassing clinical, physiological and basic neurological sciences two joint research papers were published concerning problems related to differences between chromatin proteins of the brain and other tissues and problems related to differentiating between active and inactive chromatin in developmental stages. The Institute of Biocybernetics and Biomedical Engineering consulted with Finnish scientific research centers in the course of developing basic principles governing the fabrication of detector devices and, with the aid of these devices, diagnostic methods used to study the heart and levels of lung tissue contamination by ferromagnetic elements. In the cryogenics subject area cooperation has made it possible to make much faster progress toward the practical application of quantum magnetometers and facilitated the design and fabrication of suitable electronic circuits that operate in conjunction with Josephson sensors. Cooperation between Polish and Finnish geophysicists resulted in the completion of a jointly authored work entitled "Symmetry and Asymmetry in Geodynamics," comprising a discussion of the subject of the relationships between geophysical fields, whose departures from symmetry make it possible to identify their role in general global tectonics. Work is nearing completion on a second joint study concerning the functional relationship between the physical processes that take place at earthquake epicenters and the nature of the recordings which they produce on seismographs. In the social sciences field cooperation between Polish and Finnish sociologists resulted in the publication of a jointly authored monograph entitled "Social Structure and Change: Poland and Finland, a Comparative View."

The 35th Anniversary of the Polish People's Army

On 4 October 1978, in honor of the 35th anniversary of the Polish People's Army, the Seventh All-Poland Conference on Applied Mathematics was held in Hel. The conference was attended by 350 participants from all of the country's scientific research centers, including several dozen representatives of the military academies, higher officers schools, and military scientific research institutes.

The conference proceedings were opened by docent Dr Eugeniusz Fidelis from the PAN Mathematics Institute. The Deputy Commander of the Navy for Political Affairs, rear-admiral Ludwik Dutkowski, gave an address on the importance of the mathematical sciences in the process of managing, commanding and training military personnel in order to meet the needs of

the modern navy. Brigadier general Mieczyslaw Cygan discussed the importance of mathematical sciences and methods in meeting the country's defense needs. In their addresses the president of the Polish Mathematics Society, PAN member Wladyslaw Orlicz, and the chairman of the PAN Mathematical Sciences Committee, associate PAN member Bogdan Bojarski, underscored the role and importance of the mathematical sciences in the advancement of military science and discussed relations between mathematicians and military colleges and research institutions. The first secretary of the PZPR Municipal Committee in Hel, Boleslaw Koziel, pointed out that the holding of this conference coincided with the 600th anniversary of Hel's municipal enfranchisement. In this connection the Municipal People's Council of Hel presented the organizers of the conference, i.e., the PAN Mathematical Sciences Committee, the Polish Mathematics Society, and the PAN Mathematics Institute, with a commemorative medal bearing the inscription "The 600th Anniversary of the Founding of the City of Hel."

At the close of the conference's proceedings colonel professor Edward Wlodarczyk from the Military Technical Academy gave a lecture entitled "Selected Mathematical Problems Related to Wave Motion."

On 6 October 1978 in honor of this same occasion, the College of Rectors of Szczecin's high schools and the Higher Pedagogical School organized a scientific symposium devoted to a discussion of national defense issues. Lectures were given by colonel Dr hab Julian Kaczmarek ("The Development of Military Science and National Defense Studies in Poland"), colonel (academy graduate) Marian Wieczerzak ("Contemporary Problems of National Civil Defense"), colonel (academy graduate, MA) Jan Szyszkowski ("The Effects of Military-Defense Training on Shaping Attitudes of Commitment and Dedication Among University Youth"), lieutenant colonel, MA, Dionizy Sitek ("The Contribution of Soldiers from the Szczecin Garrison to the Development of Western Pomerania"), and Alojzy Sroga ("The Citizen Soldier in Military Literature").

The participants in the symposium paid a visit to one of the military units of the Szczecin Garrison where a demonstration of military equipment was organized.

The most important scientific meeting devoted to honoring the 35th anniversary of the Polish People's Army was organized by the Polish Academy of Sciences on 15 November 1978. The theme of this conference was: "A Strong National Defense--the Duty and the Work of the Entire Nation." This conference was devoted to a discussion of cooperation between civilian and military scientists, to the accomplishments resulting from this cooperation, and to its further advancement.

In addition to members of the Polish Academy of Sciences and its Presidium and the directors and representatives of PAN scientific institutions, the conference was attended by representatives of the military command authorities, the Ministry of National Defense, generals and numerous scientists from military scientific establishments as well as by representatives of party and state authorities. The proceedings were

opened by PAN president and regular PAN member Witold Nowacki who underscored the importance of the contributions made by the work of scientists, cultural workers, and military men to the strengthening of the nation's defense preparedness. Following this keynote address, lectures were given by PAN scientific secretary and regular member Jan Kaczmarek ("The Contributions of Polish Science to the Cause of National Defense Preparedness") and by the chief of the General Staff of the Polish Army, general of arms Florian Siwicki ("The Contributions of the Polish People's Army to the Advancement of Scientific Knowledge and to the Nation's Socioeconomic Progress").

During the ensuing discussion period, in which representatives of PAN and the central offices of the Ministry of National Defense, military scientific-research establishments, the universities, and also certain branches of the armed forces and services took part, the accomplishments of cooperative efforts spanning a period of many years were analyzed and the future trends and tasks of this cooperation in the basic scientific disciplines were underscored. The head of the Research and Development Office for Military Technology and deputy inspector general for Technology of the Polish Army, division general Czeslaw Piotrowski, described the results and scope of cooperation between the technical services corps of the armed forces and the Polish Academy of Sciences. The secretary of the PAN Department of Engineering Sciences, regular PAN member Maciej Nalecz, also spoke about the importance of this cooperation in the engineering field. In his address the director of the Institute for Basic Problems of Technology, PAN regular member Ignacy Malecki, praised highly the role played by military scientists in setting the course of technological progress, especially in such areas as, inter alia, electronics, materials science engineering, structural engineering design, and ultrasonic technology. The deputy commandant of the Military Technical Academy for Scientific Affairs discussed cooperation between the Military Technical Academy and the Polish Academy of Sciences. Cooperation in the social sciences field was discussed in remarks made during the discussion period by the deputy chief of the Central Political Administration of the Polish Army, brigadier general Tadeusz Dziekan, the deputy chairman of the Council of State and regular PAN member, Jan Szczepanski, and the commandant of the Polish Army, general of arms Mieczyslaw Obiedzinski, discussed the wideranging cooperation that takes place between the provisioning services of the Polish Army and the Polish Academy of Sciences and ministerial institutes in the fields of medicine, chemistry, agriculture, consumer goods manufacturing and light industry. The relationships that exist between the military and PAN in the field of medicine were discussed by the deputy secretary of the PAN Department of Medical Sciences and associate PAN member, Miroslaw Mossakowski. The commandant of the General Staff Academy of the Polish Army, general of arms Jozef Kaminski, gave an account of problems concerning, inter alia, the long-range planning of scientific research activity in the resolution of defense-related problems and research work in the fields of the art of operations, doctrinal theory and civil defense, in addition to related problems of cooperation with the Polish Academy of Sciences.

During the discussion period it was frequently pointed out that a major accomplishment resulting from cooperation between civilian and military scientists was the first space flight made by a Polish citizen, and emphasis was also placed on the tremendous importance of cooperation in basic research in such fields as mathematics, logic, physics, chemistry, biology and so on, the kind of cooperation which is also contributing to the strengthening of our nation's defenses.

On 24 October 1978 a conference was held in Lodz devoted to a discussion of the activities of the military health services and organized by the Institute for the History of Military Medicine of the General Boleslaw Szarecki Military Medical Academy and the Lodz branch of the Polish Society for the History of Medicine.

The chief of the Health Service of the Quartermaster General of the Polish Army, brigadier general professor Jerzy Bonczak, discussed the growth and accomplishments achieved during the 35-year history of the military health service. He emphasized, among other things, the progress that has been made by the military in pursuing research in the fields of air, space and marine medicine. The findings of this research work have received recognition not only in Poland, but also abroad. Military health service establishments are acting as an equal partner in the realization of modern medical research programs, the coordinator of which is the Polish Academy of Sciences.

The proceedings of this conference took place in two problem-oriented sections, during which many lectures were given and several topics' discussion periods were held. The discussion periods were focused upon, among other things, the current progress of scientific-research work in organizing services for the health protection of military personnel. A lecture on this subject was presented by colonel docent Dr hab Andrzej Slowinski. Other topics discussed included contemporary problems of military hygiene, toxicology and intravenous medicine and issues related to the supply of medical equipment to the armed forces, and the findings of sociological studies of the role of the physician as a career military officer were also presented. These issues were discussed by professor Stanislaw Andrzejewski, colonel professor Pawel Nowicki, colonel professor Stanislaw Zdzienicki and colonel Dr of pharmacology Wladyslaw Markowski. The lectures and discussion-period remarks presented not only theoretical issues, but also concrete case studies and knowledge derived from practical experience.

On 29 November 1978 the Military Political Academy and the Military History Institute organized a symposium in Warsaw on the topic of "The Postwar History of the Polish People's Army; Historiography and the Current Status of and Trends in Historical Research." The purpose of the symposium was to evaluate the historiography on this subject and to identify general, particular and also methodological problems in research work on the history of the Polish People's Army. The ensuing discussion period was based on the following two lectures: "Stages in the Historical Evolution of the Polish

People's Army (delivered by colonel professor Kazimierz Sobczak from the Military Political Academy) and "The Presumptive and Methodological Foundations of Research on the Peacetime History of the Polish People's Army" (delivered by colonel docent Dr Stanislaw Gac from the Military History Institute).

Development Trends in the Countries of Asia, Africa and Latin America

From 6 to 8 November 1978 a seminar was held in Warsaw organized by the PAN Institute for Non-European Countries and devoted to a discussion of development trends in the countries of Asia, Africa and Latin America.

"INTERKOSMOS" Meeting Held in Warsaw

The eleventh session of the chairmen of the national coordinating organs of the countries participating in the INTERKOSMOS program took place in Warsaw from 10 to 17 November 1978. The conference was attended by delegations from Bulgaria, Czechoslovakia, Cuba, Mongolia, the GDR, Poland, Romania, Hungary and the USSR. The conference agenda was devoted to an evaluation of the preliminary results of the three international manned space flights carried out thus far under the terms of the INTERKOSMOS program on board the "Salyut-Soyuz" orbiting space station with the participation of cosmonauts from Czechoslovakia, Poland and the GDR and to the planning of the experiments which will be conducted during upcoming Earth-orbit space flights involving the participation of cosmonauts from the socialist countries.

The proceedings were opened by the chairman of the PAN Space Research Committee and associate PAN member, Jan Rychlewski. The next speaker, PAN president and regular PAN member Witold Nowacki, stressed, among other things, the fact that the decisions made several years ago to make Soviet space technology accessible to the other socialist countries are now being put into practice. The deputy director of the Space Research Institute of the USSR Academy of Sciences, professor Georgiy Marimanov, gave an account of the progress that has been made in promoting the cooperation among the socialist countries in the field of space research, cooperation which is producing scientific results whose importance is being recognized throughout the international scientific community.

During the course of the conference proceedings a review was made of the results of joint tests and experiments in the fields of space physics, space meteorology, communications, biology and medicine and remote sensing that were carried out within the context of the program for cooperation among the socialist countries during the period 1977-1978.

The conference participants had an opportunity to familiarize themselves with the activities of some of our own scientific institutions that are taking part in space research projects carried out within the framework of the INTERKOSMOS program, including, inter alia, the PAN Physics Institute and the PAN Space Research Center.

At the close of the conference proceedings ceremonies were held in Jablonna on 17 November to mark the signing of the protocol of the Warsaw conference. During these ceremonies professor Jan Rychlewski presented the chairmen of the attending delegations with commemorative medals honoring the Polish scientific institutions which were responsible for planning the program of experiments that were conducted during the space flight in which the Polish cosmonaut Miroslaw Hermaszewski (who also attended the conference) took part; these medals are replicas of the medals that were stowed on board the "Soyuz 30" spacecraft.

Isochronal Cyclotron Technology

From 13 to 14 November 1978 an international conference on isochronal cyclotron technology was held at the Nuclear Physics Institute in Krakow. The conference was cosponsored by the United Institute of Nuclear Research of Dubna in the USSR.

The proceedings of the conference were attended by delegations from seven European countries representing scientific centers which are carrying on research work in the field of cyclotron technology.

Cyclotrons are now being used also for the fabrication of isotopes, the development of high-yield grain varieties and the treatment of neoplastic diseases.

The Improvement of Farmland Management Practices

From 6 to 7 November 1978 a scientific-technical conference was held in Szczecin devoted to the improvement of state farmland management practices. The conference was attended by agricultural economists from all regions of Poland, the directors of agricultural combines, the directors of associations, representatives of the Ministry of Agriculture and regular PAN member, Ryszard Manteuffel.

The conference was opened by professor Zygmunt Dowgiallo from the Agricultural Academy in Szczecin. Julian Przystupa (director of the Association of State Farm Enterprises in Szczecin) and Jozef Nowak (director of the State Farm Combine in Węgorzyna) described the system of management employed on state farms in Szczecin Voivodship, stressing that it is also necessary to secure the assistance of members of the scientific community whose efforts will contribute greatly to the boosting of agricultural production. In several of the lectures given at this conference scientists--mainly from the Szczecin Agricultural Academy--discussed some of the special problems that must be dealt with in the management of large-scale farms.

The Protection of Fruit-bearing Plants

In Skierniewice from 16 to 18 November 1978 the Fruit-growing Institute of Skierniewice organized a national conference devoted to a discussion of the

problems involved in the protection of fruit-bearing plants. The conference was attended by specialists from agricultural institutes and academies, experimental research establishments, breeding stations, experts on plant protection and quarantine and orchardists.

The agenda of the conference, which was presided over by regular PAN member Szczepan Pieniazek, consisted of 20 lectures encompassing a discussion of the means used to combat orchard pests, chemical and biological pest control agents that can be effectively employed in the extermination of fruit tree parasites, and methods used to prevent diseases in orchard crops.

Department of Marine Medicine Meets in Gdynia

The Fourth Symposium of the Department of Marine Medicine of the General Boleslaw Szarecki Military Medical Academy was held in Gdynia from 13 to 14 November 1978. The department chairman, commodore professor Kazimierz Ulewicz, described the achievements made in the field of marine military medicine during the period 1975-1978 and the prospects for the further growth of this field.

The symposium proceedings included readings of doctoral dissertations for the degree of doctor of medicine. Among the dissertations that were read special honors were extended to a work by Mieczyslaw Graczyk entitled "Roentgenological Changes in the Scapular Arch, Neck Vertebrae and Upper Extremities Due to Localized Vibration in Dockworkers and Machine-shop Employees," the first such work based on original research. Moreover, several other papers were presented that were prepared by staff members of the Institute of Marine and Tropical Medicine in Gdynia, the Marine Institute of Gdansk, the Naval Academy and the Department of Marine Medicine of the Military Medical Academy. Scientists shared findings obtained through their research work in the fields of epidemiology, vibration studies, hyperbaric medicine and psychology, the recruitment and selection of fleet personnel, ship crews and so on.

The Immunology of Neoplastic Diseases

A conference was held in Szczecin on 18 November 1978 devoted to a discussion of the immunology of neoplastic diseases. The conference was attended by specialists engaged in research on the resistance mechanisms of the human body that combat the onset of cancer.

Representatives of PAN's Ludwik Hirszfeld Institute of Immunology and Experimental Therapeutics in Wroclaw discussed the findings of research work on the development and treatment of cancer using immunodiagnostic methods. During the conference representatives of the Pomeranian Medical Academy presented reports on their research work. Medical research findings that have already gained worldwide attention are being achieved by the Hematology Clinic under the direction of docent Dr hab Ignacy Urasinski, the Pathophysiology Research Center under the direction of professor Aleksandra Krygier-Stojalowska,

the Electron Microscopy Laboratory under the direction of professor Stanislaw Woyka, and the Institute of Microbiology and Immunology under the direction of docent Dr hab Jozef Halasa.

It was stressed that progress in the field of immunology is of tremendous importance to the future of the fight against cancer, and many scientists are working toward the development of a new and effective method, based on immunologic mechanisms, for the treatment of neoplastic diseases.

[Apr 1979 No 4 pp 139-149]

[Excerpt] Human Rights in the Socialist Countries

From 12 to 16 December 1978 a conference of lawyers from Poland and the GDR was held in Poznan on the subject of "The Socialist Concept of Human Rights." The conference was sponsored by the Poznan Research Group for the Study of the Rights and Duties of Citizens which is an adjunct of the PAN Institute of State and Law. This was the first meeting ever held to discuss this subject under the terms of an agreement on cooperation between legal scholars from both countries. The conference was attended by the directors of the PAN Institute of State and Law and the Institute of State and Law of the Academy of Sciences of the GDR, respectively professor Adam Lopatka and professor Wolfgang Weichelt.

The participants heard several lectures which discussed, inter alia, the concept of human rights and its socialist interpretation, the progress of legislation in this area and the interdependence of civic rights and duties, the evolution and the prospects for the realization of human rights in both countries and the bourgeois critique of the observance of human rights under socialism, and the realization of worker rights to participate in the management decision-making of business enterprises.

At the close of the conference's proceedings the participants met with members of the Polish Bar Association in Poznan and with the directors of the Institute of the Western Territories and then paid a visit to Leszno and Zielona Gora.

Results of the "INTERKOSMOS--Copernicus 500" Experiment

On 18 December 1978 a joint Polish-Soviet symposium was held in Warsaw sponsored by the PAN N. Copernicus Astronomy Research Center. The symposium proceedings included a report summarizing the results of the "INTERKOSMOS--Copernicus 500" experiment which was conducted in 1973 with the participation of Polish and Soviet scientists.

This was Poland's first satellite experiment, during which test equipment manufactured in Poland was launched into space on board a sputnik satellite. The experiment was given the code name "INTERKOSMOS--Copernicus 500" in honor of the 500th anniversary of the birth of Nicholas Copernicus which was celebrated in 1973.

The chairman of the PAN Space Research Committee, associate PAN member Jan Rychlewski, stressed that in terms of the knowledge that was gained this experiment is the most important research project ever carried out in Poland in this field. The results of this experiment, which were presented at numerous congresses, were applauded by members of the international scientific community. The scientific findings of the experiment were described by the experiment's program director, docent Dr Jan Hanasz of Nicholas Copernicus University, stated that while operating in Earth orbit for twice as long as it was expected to the Polish radiospectrograph designed to study radio wave emissions from the Sun in the 50-600 meter band detected more than 50 so-called class-two radio-wave bursts on the Sun. For the first time ever the phenomenon of the polarization of radio waves emitted by the Sun was observed in space.

Addresses were also given by the experiment's scientific program director for the Soviet side, Dr V. Aksyenov, and the deputy director, bearing overall responsibility for the conduct of the experiment, of the Institute of Radio Engineering and Electronics of the USSR Academy of Sciences, professor A. Sokolov.

The Soviet scientists were presented with medals from the Presidium of PAN that were specially cast to commemorate the occasion of the first space flight by a Polish citizen.

Cooperation Between Poland and the USSR in Agriculture

On 11 December 1978 a conference was held in Olsztyn on "Scientific and Technological Progress and Socioeconomic and Cultural Development in the USSR" sponsored by the Central Administration of the Polish-Soviet Friendship Society and cosponsored by the Voivodship Administration of the Polish-Soviet Friendship Society and the Agricultural Engineering Academy in Olsztyn.

The conference's keynote lectures were delivered by the deputy minister of agriculture, Stefan Zawodzinski ("Cooperation Between Poland and the USSR in the Area of the Harnessing of Scientific and Technological Progress in Agriculture") and the counsellor of the Embassy of the USSR in Poland, Dr Ignatij N. Kuzhnetsov ("Problems of the Further Development of Rural Areas and Agriculture in Light of the Resolutions of the July 1978 Plenum of the PZPR Central Committee"); the rector of the Agricultural Engineering Academy, professor Teofil Mazur, and professor Stefan Paprocki discussed cooperation between the Olsztyn Academy and Soviet scientific institutions that was initiated during the 1960's. Other lectures were given by: Dr Sergiush Zavyalov (Moscow)--"Scientific and Technological Progress and the Transformation of Agricultural Work into Industrial Work;" professor Boleslaw Struzek (Warsaw)--"Social and Economic Problems of Soviet Rural Development and Trends Leading Toward the Gradual Elimination of Differences Between Town and Country;" professor Wladyslaw Misiuna (PAN)--"Scientific and Technological Progress and Changes in the Consumption Patterns of the People of the USSR;" Dr Maria L. Szwengrub (PAN)--"The

Development of Social and Housing Conditions in the Soviet Countryside;" docent Dr Konstanty Judenko (Olsztyn)--"Trends and Achievements in the Development of the Soviet Countryside;" Jozef Kowalyszyn (Warsaw)--"Progress in the Mechanization of Agriculture and its Impact on Changing Working Conditions in Agriculture in the USSR;" Dr Zdzislaw Piescikowski (Poznan)--"Integration Processes Occurring Within the Agroindustrial Complex and Changes in the System for the Management of the Production of Goods of Agricultural Origin in the USSR;" docent Dr hab Zbigniew Kwiecinski (PAN)--"The Rise in the Level of Education Among Rural Youth in the USSR in Light of Sociological Research;" docent Dr Robert Rowinski (Olsztyn)--"Cooperation Between Poland and the Soviet Union in the Field of Agricultural Aircraft."

Zootechnicians Conference

From 13 to 14 December 1978 a conference of animal husbandry specialists from all over the country was held in Krakow sponsored by the Institute of Zootechnics with the cooperation of the Polish Academy of Sciences.

The conference proceedings, which were attended by scientists and staff members of zootechnical services, were devoted to a discussion of the problem of how to go about stepping up beef production. The staff members of the institute can take pride in the major achievements they have scored in the area of the crossbreeding of Polish with Italian cattle breeds, thanks to which it is now possible to achieve much larger increases in slaughter-cattle weight while using the same amount of animal feed as before. This is why it is so important that this new system of cattle raising should be popularized as broadly as possible both on socialized-sector farms and on private farms.

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[Excerpts] Joint Polish-French Symposium in Warsaw

Under the terms of an agreement on scholarly cooperation between Warsaw University and the Université de Paris-Dauphine a conference was held in Warsaw from 7 to 9 January 1979 devoted to a discussion of the problems involved in the impact of the state on processes of national economic management. The conference was sponsored by the Department of Management Studies of Warsaw University. The proceedings were attended by the cultural attache of the French Embassy in Warsaw.

Twenty-three papers were presented, including eight by French scholars that were considered for presentation at the conference. These papers dealt with, among other things, such problems as the role of the central authorities in the processes of managing the Polish and French economies; the impact of the state on the management of business enterprises and on consumption policy; the effects of administrative arbitration and judicial rulings on management and the impact of national government in the sphere of public services and the supply of goods for personal consumption; the role of sociological and psychological factors in management; information-sharing systems in management processes, their limits and potential.

A comparison of research methods and views on the crucial problems involved in the management of socialist and capitalist economies--while making allowances for the unique characteristics of both the Polish and French economies--made it possible to find a common ground for a debate on issues of concern to both countries. Both the French and Polish participants in the conference were very hopeful about the prospects for the further broadening of the scope of cooperation between Warsaw University and the Université de Paris-Dauphine. It is expected that a similar conference will be held in 1980 in Paris devoted to a discussion of the problems involved in strategic planning, exchanges of scholars, publishing activities, and also exchanges of scholarship students.

It was announced that the conference proceedings would be published in a bilingual edition of the journal ORGANIZACJA I ZARZADZANIE.

Problems of Imperialism

On 28 January 1979 in Jablonna near Warsaw an international symposium was held sponsored by the Institute for the Study of Contemporary Problems of Capitalism and the editorial board of the periodical PROBLEMY POKOJU I SOCJALIZMU [Problems of Peace and Socialism]. The symposium's proceedings were attended by scholars on the staffs of party institutes representing the following parties: the Communist Party of Great Britain, the Communist Party of Chile, the Communist Party of Israel, the German Communist Party, the PZPR, the Communist Party of Portugal, the Communist Party USA, the Communist Party of the Sudan, the Italian Communist Party, and the CPSU, in addition to the editors of the journal PROBLEMY POKOJU I SOCJALIZMU.

The theme of the conference was: "Special Features of Imperialism During the Present Phase of Social Development--New Features in its Global Strategy and Tactics Employed in the Struggle Against the Forces of Peace, Social Progress and Socialism."

Financial Policy Instruments

The Main School of Planning and Statistics, the Ministry of Finance and the Institute of Finance sponsored a conference which was held in Warsaw from 29 to 30 January 1979 and whose theme was: "Instruments of Financial Management in the Economic-Finance System of Economic Organizations." The conference gathered together numerous representatives of scientific institutions and the business world.

The keynote lecture was delivered by Dr hab Zbigniew Madej, the deputy minister of finance. The conference also provided a forum for the reading of papers with the following titles: "The Role of Financial Instruments in Managing the Activities of Economic Organizations (professor U. Wojciechowska); "The Settlement of Accounts Between Economic Organizations and the State Budget" (Dr S. Chudzynski); "Rules Governing the Distribution of Profits" (E. Cichowski); "The Role of the Banking and Credit System" (professor

W. Jaworski); "The Role of Financial Instruments in the Incentive System" (docent Dr L. Szyszko); "The Impact of Financial Instruments on Management Efficiency" (Dr J. Szczepanski); "The Impact of Financial Instruments on the Quantity, Quality and Structure of Product Lines" (docent Dr hab S. Dulski); "The Impact of Financial Instruments on the Pace and Efficiency of Development Processes" (docent Dr J. Boguszewski); "The Role of Financial Instruments in the Management of Foreign Trade (docent Dr W. Rydygier). These papers discussed themes touching upon all of the major elements of the economic-financial system.

At the close of the conference proceedings the minister of finance, Henryk Kisiel, gave an account--set against the background of the current situation and needs of the economy--of the importance of the economic-financial system and of the tasks which need to be resolved in the course of work on the modification and improvement of this system in order to make progress toward upgrading the quality of management efficiency.

The Organization and Management of Industrial Services

On 19 February 1979 the Polish Economics Society organized a conference in Warsaw whose theme was the organization and management of industrial services. The conference was attended by numerous experts whose views on the key issues facing our economy became the focal point of a general debate.

Emphasis was placed, inter alia, on the need to draw up a detailed study which would make it possible to develop more efficient policies in this area and to accurately identify tasks and resources so as to be able to bring the development programs of the industrial services sphere into line with the diverse needs of individual regions and localities. This is related to the need to make refinements in the model program of management and organization and to create a more effective system of information sharing and various types of regulatory and incentive mechanisms so as to enable the industrial services sector to develop in keeping with the requirements of the stipulated program. Reference was made to trends pointing toward the elimination of various kinds of economic and financial barriers and statements were made spelling out what needs to be done to develop the kind of system of economic mechanisms, organizational structures and management methods that is required. It was pointed out that the organization of service enterprises should not be split up into smaller units and that there should be no proliferation of management centers, rather a proper equilibrium should be maintained in employment between traffic and management components and those organizational components which are engaged directly in the performance of service functions. It is necessary to do away with excessive bureaucracy and to decentralize organization and management so as to allow for the building up of a ground-work conducive to genuine economic autonomy among providers of services. This is why it was recommended that there should be fewer administrative decrees and that more control should be exercised by means of economic mechanisms, that more attention should be paid to the modernization of the industrial base and to the practical application of technological progress.

Environmental Protection

On 4 January 1979 a symposium was held in Krynica on "The Protection of the Natural Environment of Health Resorts Based on a Case Study of the Situation in Krynica."

The following papers were read at this symposium: "Ecological Problems in the Field of Balneology" (docent Dr Czeslaw Belec); "The Harmful Effects of Noise Pollution in the Natural Environments of Health Resorts" (professor Tadeusz Ceypek); "Clinical Aspects of the Chemical Contamination of the Natural Environment" (associate PAN member Boguslaw Halikowski); "Air Pollution in Krynica" (Dr Jerzy Skrzypski).

Both in the formal lectures and in the ensuing discussion period as well as in the final recommendations that were made it was stated that there is serious cause for concern raised by the rise in levels of noise pollution, air and water pollution, and the existence of numerous sources--in excess of tolerable norms--of pollutant emissions and noise. It was stressed that in order to fully restore Krynica's natural environment to a pristine state it is necessary to modernize the town's heating service system, the end result of which should be the conversion to natural gas heating, to completely rebuild the town's road network, thereby diverting vehicular traffic from the health resort's core area, to electrify the Krynica rail line and railroad station until such time as diesel locomotives can be put into service on this line, to evict so-called "dirty" production and storage facilities from the health resort, and to introduce stricter public health standards and to make better use of the resort's protective green belt. Attention was focused on the development of a detailed land-use management plan for Krynica that makes allowances for the town's primary function, i.e., its role as a health service resort center.

Fiber Optics Applications

The PAN Committee for Electronics and Telecommunications Engineering and the Communications Institute sponsored a second symposium devoted to a discussion of fiber optics and their practical applications. The symposium was held from 13 to 15 February 1979 in Jablonna near Warsaw and it was attended by around 150 scientists representing Polish scientific-research institutions, industry and the communications engineering field and by a group of foreign scientists interested in fiber optics technology.

The symposium was held in order to familiarize its participants with the scientific and technological progress that is being made in this field. Polish efforts dedicated to the inauguration of an experimental fiber-optics communications line in Lublin were described by professor Zenon Szpigier from Warsaw Polytechnic University.

A Conference of Food Technologists and Chemists

Issues pertaining to the conservation of raw materials and energy in the food technology field were the focal point of the Tenth Symposium on this subject held from 7 to 9 February 1979 in Krakow and sponsored by the PAN Committee on Food Technology and Chemistry acting in cooperation with the Krakow Agricultural Academy, the Krakow branch of PAN and the Krakow branch of the Association of Food Processing Industry Engineers and Technologists. The symposium proceedings were attended by approximately 200 scientists from all over Poland.

The proceedings were opened by the rector of the Agricultural Academy, professor Tadeusz Wojtaszek, who gave an account of the achievements made to date by food technologists and chemists.

Four papers were read during the symposium's plenary session. Docent Dr Roman Skoczylas discussed the energy inputs expended on the production of basic field crops--the raw materials of the food processing industry; docent Dr Piotr Lewicki described energy consumption patterns in the basic processes employed in the food technology industry; professor Mieczyslaw Palasinski spoke about the raw materials that are wasted in food processing and about the prospects for preventing this waste; docent Dr hab Nina Barylko-Piekielna discussed the quality of foodstuffs from the standpoint of the conservation of raw materials in the food processing industry.

In addition, the symposium broke up into three separate specialized sections which discussed problems having to do with the conservation of energy and food technology, the conservation of raw materials in technologies employed for the processing of products of vegetable origin, and the conservation of raw materials in technologies employed for the processing of products of animal origin. An integral part of the symposium was the visual-aids display session which vividly portrayed the latest achievements in the field of food chemistry and technology.

The participants in the symposium visited the Tobacco Industry Works in Krakow, the Brewery Works in Okocim and the Fruits and Vegetable Industry Canneries in Tymbark.

Plant Protection Problems

From 8 to 9 February 1979 the Institute for the Protection of Field Crops in Poznan hosted a conference that was attended by more than 1,200 specialists from Poland and abroad--primarily representatives of firms engaged in the production of field crop protection agents.

The papers that were presented at the conference and the remarks made during the ensuing discussion period focused mainly on such problems as, inter alia, new agents used to combat papilionaceous plant diseases, mites, mildew and grain rust, potato blight, and beetles. Also stressed was the need to observe the rules of environmental protection when using potent pesticides.

Biocybernetic Systems and Elements

From 29 to 31 January 1979 the PAN Institute of Biocybernetics and Biomedical Engineering hosted a symposium held in Warsaw devoted to a discussion of the latest research findings in the field of biocybernetic systems and elements and also to the prospects for their further development and the practical application in medicine of scientific and design breakthroughs.

The Third National Scientific Conference on Biocybernetics and Biomedical Engineering was held in Wroclaw from 12 to 14 February 1979. The conference was attended by around 400 specialists, i.e., physicians and biologists, computer scientists and electronics engineers, physicists, mathematicians, specialists in the field of systems analysis from throughout the country, and also by prominent representatives of this scientific discipline from abroad.

The topics that were discussed included, inter alia, data processing and control processes in living organisms, new processors, measurement methods and systems used for biological and methodological purposes, problems associated with the design of artificial bodily organs and the optimization of their operation and control.

Emphasis was placed on the enormous importance of the breakthroughs that have been made in the field of biocybernetics, especially as they relate to the cause of medical progress. For the progress made in this field has resulted in the development of superb, high-precision medical equipment, artificial organs, diagnostic apparatuses and computerized information systems that are helpful in the field of preventive medicine and in the more effective management of health care services.

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